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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/954,899
Filing Date: September 18, 2001
Appellant(s): HANSON, BROR H.

Daniel H. Bliss
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 7, 2005.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on August 23, 2004 has been entered.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

The appellant's statement of the issues in the brief is correct.

(6) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(7) Prior Art of Record

6,291,026	HANSON et al	9-2001
6,117,495	HANSON et al	9-2000
5,294,251	URENA	3-1994

(8) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 11, 12, 15, 16 are rejected under ODP and 35 U.S.C. 103 (a). This rejection is set forth in a prior Office Action, mailed on September 11, 2003.

Claims 11-12 and 15-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6, 8, and 12 of U.S. Patent No. 6,291,026 in view of Urena (US 5,294,251). The claims of U.S. Patent No. 6,291,026 teach the limitations of instant claims 11-12 and 15-16, except the claims of U.S. Patent No. 6,291,026 lack a limitation of 7-10 weight percent solids in the solvent base wax coating on the mold surface. Urena is cited for its teaching of a conventional solvent based wax coating useful as a mold release coating that preferably comprises 5-15% by weight wax solids in its coating (col. 4, lines 32-35). It would have been obvious for one having ordinary skill in the art to have used a conventional solvent based wax for coating a mold surface in Patent '026 with the expectation of successful results because Patent '026 does not put any limitations on the solvent base wax material that may be used in its invention, and Urena teaches that a conventional solvent based wax is suitable for coating a mold surface. Moreover, one skilled in the art would have been additionally motivated to use a conventional solvent based wax of Urena for coating a mold

release in Patent '026 because of the benefit of producing a flexible film that adheres well and has less tendency to peel and crack compared to other wax coating compositions, and because it does not require complex mixing equipment or numerous ingredients, and is stable at high temperatures (col. 2, lines 7-16 and col. 3, lines 43-48).

Moreover, it is held that concentration limitations are obvious absent a showing of criticality. Akzo v. E.I. du Pont de Nemours 1 USPQ 2d 1704 (Fed. Cir. 1987).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have discovered the optimum or workable ranges of concentration limitations (including those of claimed invention) in Patent '026 by routine experimentation in the absence of a showing of criticality, e.g. by showing unexpected results of using concentrations within claimed range of 7-10 wt % solids compared to concentration of e.g. 6 wt % or 11-15 wt % solids.

As to the applying a release powder onto the substantially dry wax coating, Patent '026 teaches that the solvent based wax is reapplied **periodically** to form a base coat (See Claim 3), while the release powder is applied onto the base coat prior to **each** molding operation (See Claim 4). In other words, Patent '026 teaches that at least at *second* molding operation, the release powder is applied onto the **substantially dry** base coat, as required by claimed invention.

Further, it is noted that when using a solvent base wax, the solvent will start to evaporate immediately since Patent '026 teaches that the coating material is **heated** before deposition of the release powder (See Claim 12), therefore drying will inherently occur prior to applying the release powder layer. Also, the wax coating layer thickness is a cause-effective variable depending upon the molding conditions, i.e., temperature and length of time of heating. It is well

settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Claims 11-12 and 15-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6, and 8-9 of U.S. Patent No. 6,117,495 in view of Urena (US 5,294,251). The claims of U.S. Patent No. 6,117,495 teach the limitations of instant claims 11-12 and 15-16, except the claims of U.S. Patent 6,117,495 lack a limitation of 7-10 weight percent solids in the solvent base wax coating on the mold surface. Urena is applied here for the same reasons as above. It would have been obvious for one having ordinary skill in the art to have modified the method of the claims of U.S. Patent No. 6,117,495 by using Urena's conventional solvent based wax coating as the coating on the mold surface with the expectation of successful results because, since U.S. Patent No. 6,117,495 lacks details of an exemplary solvent base wax material that may be used in its invention, one skilled in the art would have been motivated to look for conventional solvent based wax mold release coatings that may be used, and additionally because Urena teaches the benefit of producing a flexible film that adheres well and has less tendency to peel and crack compared to other wax coating compositions, does not require complex mixing equipment or numerous ingredients, and is stable at high temperatures (col. 2, lines 7-16 and col. 3, lines 43-48). Further, it is noted that when using a solvent base wax, the solvent will start to evaporate immediately, therefore drying will inherently occur prior to applying the release powder layer. Also, the wax coating layer thickness is a cause-effective variable depending upon the molding conditions, i.e., temperature

and length of time of heating. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Claims 11-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson et al. (US 6,117,495) in view of Urena (US 5,294,251).

With respect to claim 11, Hanson et al. discloses a method for forming a mold release coating on a mold surface comprising the steps of applying a barrier coating of a liquid solvent base wax material on the mold surface (for example by spraying), and applying a release powder onto the wax coating layer (col. 5, lines 53-64). Hanson et al. lacks a teaching of the first solvent base wax coating material containing about 7 to about 10 weight percent solids. Further, it is noted that Hanson et al. lacks any specific details or exemplary compositions of the solvent base wax coating material that may be used in its invention. One having ordinary skill in the art would have been motivated to look to the prior art for conventional solvent-based wax coating materials that may be used as the mold release coating composition in Hanson et al.'s mold coating process.

Urena discloses a solvent-based microcrystalline wax coating composition that may be used as a mold release coating and may be applied by spraying (see Abstract, col. 4, lines 51-53, and col. 5, lines 22-25). Urena teaches that its solvent-based microcrystalline wax coating comprises about 5-15% wax by weight. It would have been obvious for one having ordinary skill in the art to have used the solvent-based wax coating of Urena as the wax base coat material in Hanson et al.'s mold coating process with the expectation of successful results since Hanson et

al. is silent as to the types of wax coatings that are used in its invention, and therefore one skilled in the art would have been motivated to look to prior art coating materials to determine exemplary coating compositions, and additionally because Urena's microcrystalline wax coating composition produces a flexible film that adheres well and has less tendency to peel and crack compared to other wax coating compositions, does not require complex mixing equipment or numerous ingredients, and is stable at high temperatures (col. 2, lines 7-16 and col. 3, lines 43-48).

With respect to the range of percent solids, it is noted that, because the coating composition of Urena only comprises solvents as essential ingredients in addition to the wax, the range of 5-15% by weight wax corresponds to 5-15% by weight solids. Additionally, overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Urena's weight percent wax range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Further, it is noted that Urena teaches in Table I (col. 5) that 10 % by weight of microcrystalline wax is used when the wax-containing coating is used as a mold release coating for polystyrene foam. Since Hanson et al. is specifically direct to mold release coating for use in molded polymeric foam parts (col. 1, lines 20-21), it would have been obvious for one having ordinary skill in the art to have used Urena's solvent-based wax coating comprising 10 % by weight microcrystalline wax because Urena discloses successful results when its coating composition is used as a mold release coating for polystyrene foam.

Hanson et al. does not specifically state that substantial drying of its solvent base wax material occurs prior to applying the release powder thereon. It is noted that Hanson et al states:

"Periodically, such as once every ten parts, a normal application of solvent base wax is sprayed on the mold. Just before pouring each part, the release powder is electrostatically deposited on the base coating in the mold, generally 0.5 to 2 g." Therefore it is noted that application of the release powder does not occur immediately after applying the wax coating layer, and additionally is necessarily applied to a dried wax layer in 9 of every 10 applications because Hanson et al. teaches that the wax layer remains on the interior of the mold after a completed molding operation. Further, it is noted that Urena states that its solvent is selected to provide "rapid evaporation" and "quickly evaporates" (col. 3, lines 64-67 and col. 5, lines 1-2), therefore the solvent in the solvent base wax coating would inherently quickly evaporate from the wax coating layer after application, thus leaving a substantially dry coating prior to application of the release powder.

With respect to claim 12, Hanson et al. states that the base coat is a "built-up layer of solvent base wax" which necessarily requires that at least two layers of the liquid wax material are applied to the mold surface. It is the Examiner's position that the wax layers are substantially dried after deposition for the reasons discussed in the paragraph above.

As to claims 14 and 15, Hanson et al. discloses applying the release powder by electrostatic spraying and in an amount in the range of 0.5 to 2 grams (col. 5, lines 61-64). With respect to claim 15, it is noted that overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Hanson et al.'s powder amount range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974).

Moreover, it is held that concentration limitations are obvious absent a showing of criticality. Akzo v. E.I. du Pont de Nemours 1 USPQ 2d 1704 (Fed. Cir. 1987).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have discovered the optimum or workable ranges of concentration limitations (including those of claimed invention) in Patent '026 by routine experimentation in the absence of a showing of criticality, e.g. by showing unexpected results of using concentrations within claimed range of 7-10 wt % solids compared to concentration of e.g. 6 wt % or 11-15 wt % solids.

(9) Response to Argument

Applicants' arguments filed March 7, 2005 have been fully considered but they are not persuasive.

Applicant argues that the obviousness-type double patenting (ODP) rejections should be based solely on claims of Hanson et al. '026 and '495 patents and claims of the Urena '251 patent because the standard for comparison for the second is what was claimed in the first patent, not what was disclosed in the specification of the first patent. The Examiner notes that only the *claims* of the reference to which double patenting is asserted (the "first patent," i.e., the Hanson et al. '026 and '495 references) were used to compare with the claimed invention. The Urena '251 reference is a secondary reference not the first patent **prior art** reference because Urena '251 does not have common assignee or inventor. Therefore, ODP rejection based on the *claims* of the first patent **prior art** references of Hanson et al. '026 and '495 and on the *disclosure* of the secondary reference of Urena '251 is proper.

With respect to the 35 USC 103(a) rejections over Hanson et al. '495 in view of Urena, Applicant argues that Hanson et al. '495 does not disclose providing a barrier coating of a substantially liquid wax material, wherein the wax material includes about 7 to about 10 weight percent solids, permitting wax material to substantially dry after application onto a mold surface, and applying the release powder onto the barrier coating after the wax material has been permitted to substantially dry after application onto the mold surface. The Examiner notes that Hanson et al. teaches providing a barrier coating of a substantially liquid wax material by spraying solvent base wax on the mold surface as disclosed in col. 5, lines 53-61; a solvent base way is a substantially liquid wax material. The Examiner acknowledges that Hanson et al. does not teach the use of a wax material containing about 7 to about 10 weight percent solids. The Urena reference is cited for this teaching. It is the Examiner's position that because Hanson et al. lacks any details about an exemplary solvent base wax composition that may be used in its invention, one having ordinary skill in the art would have been motivated to look to the prior art, such as the Urena reference, for conventional solvent-based wax coating materials that may be used as the mold release coating composition in Hanson et al.'s mold coating process.

Hanson et al. does not specifically state that substantial drying of its solvent base wax material occurs prior to applying the release powder thereon. However, Hanson et al. states: "Periodically, such as once every ten parts, a normal application of solvent base wax is sprayed on the mold. Just before pouring each part, the release powder is electrostatically deposited on the base coating in the mold, generally 0.5 to 2 g." Therefore, in 9 of every 10 applications, the release powder is necessarily applied to a substantially dried wax layer because Hanson et al. teaches that the wax layer remains on the interior of the mold throughout the 9 completed

molding operations. The solvent from the solvent-base wax would have necessarily evaporated from the barrier coating throughout the 9 molding operations, particularly since molding occurs at elevated temperatures. Additionally, even on the first application of solvent base wax, the use of the phrase "Just before" indicates that application of the release powder does not occur immediately after applying the wax coating layer. Further, with respect to the combination of Hanson et al. '495 and Urena, Urena states that its solvent is selected to provide "rapid evaporation" and "quickly evaporates" (col. 3, lines 64-67 and col. 5, lines 1-2), therefore the solvent in the solvent base wax coating would quickly evaporate from the wax coating layer after application, thus leaving a *substantially* dry coating prior to application of the release powder.

Applicant argues that Urena does not disclose providing a barrier coating of a substantially liquid wax material, wherein the wax material includes about 7 to about 10 weight percent solids, permitting wax material to substantially dry after application onto a mold surface, and applying the release powder onto the barrier coating after the wax material has been permitted to substantially dry after application onto the mold surface. The Examiner notes that the Urena reference is cited *merely* for its teaching of a known and exemplary solvent-based wax coating material that is sprayable and may be used for providing a release coating on molds (col. 2, lines 23-36, col. 4, lines 51-53, and col. 5, lines 15-25), and which may be used as an exemplary solvent base wax material in the Hanson et al. '495 process. Urena teaches that the wax is included in an amount of about 5-15% by weight. Since Urena teaches that the only essential ingredients of its composition are wax and solvent, the range of 5-15 wt % weight corresponds to 5-15 wt % wax solids. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected

the portion of Urena's weight percent wax solids range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Additionally, Urena teaches in Table I (col. 5) that 10 % by weight of microcrystalline wax is used when the wax-containing coating is used as a mold release coating for polystyrene foam. Therefore, Urena discloses a substantially liquid wax material wherein the wax material has weight percent solids in the range of 5-15 wt %, which overlaps the claimed range of 7-10 wt %, and specifically 10 wt % when used as a mold release coating for polymeric foam.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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March 29, 2005

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